Just in case you are not one of the many POULTRY DIGEST readers who saves (even has bound) every issue to form a continuous library of poultry production information, the following monthly breakdown of our serial numbering system should be helpful in locating articles.

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Management and diet affecting egg size

Profitability of a flock is determined to some extent by egg size because eggs are sold by weight categories (small, medium, large, etc.). Egg size is attributable to the size of the ovulated yolk, mainly lipids, and the amount of albumen deposited, mainly protein (on a dry basis).

As in-house temperatures rise and feed consumption declines, such as during summer months, egg size is reduced. Some of the other management and dietary factors affecting egg weights are body weight at 20 weeks old, level and type of fat, and protein and amino acid content of the diet.

It has been concluded from research at our station that egg size can be manipulated by changing initial body weight of layers (by nutrition and/or housing density during rearing). Housing birds of a specific average body weight can be considered a method for "coarse" adjustment of egg weight, whereas changing the level of fat or methionine in the diet would constitute a "fine" adjustment of egg size.

Results of a 1981-1982 Southern States Research Farm layer study, in which egg size was found to be related to body weight, are presented in Table 1. It should be noted that two strains and two levels of protein were used in the test. Increasing initial weight at 20 weeks from 1253 to 1484 grams (2.76 to 3.27 pounds) increased average egg weight by 4.25 per cent from 56.73 to 59.14 grams per egg (45.0 to 46.9 pounds per case) over the one-year study.

An equation to predict final body weight from initial body weight was developed from our data (Table 1), and a 20-week weight of 1371 grams (3.02 pounds) was found to be optimum when a final weight of 1700 grams (3.75 pounds) was desired. Of course, factors such as feed, housing density and season may alter final weights.

L. S. Jensen, University of Georgia, reviewed various factors known to influence egg weights and gave particular emphasis to the use of added fat in layer diets for improving early egg size. Combined data from two 16-week

Table 1. Influence of 20-week body weight on 72-week body weight of layers and on average egg weight.

Body weight category	20-Week weight (g)	72-Week weight (g)	Average egg weight[2] (g)
Low (in bottom ⅓)	1253	1590	56.73
Medium (in middle ⅓)	1362	1684	58.20
Heavy (in upper ⅓)	1484	1812	59.14

[1]Final 72-week weight, g = 379.9 + (.9628 × 20-week weight, g).
[2]Average egg weight, g = 43.84 + (.01038 × 20-week weight, g).

Table 2. Combined data from two 16-week layer studies: effect of dietary animal fat on egg weight

Dietary treatment (22-38 weeks)	Average egg weight (g)	Egg weight category: Small + medium (%)	Egg weight category: Large + extra large (%)
0% animal fat	57.5	41.2	58.3
1% animal fat	58.3	37.8	61.7

[1]Mean values from Experiments 2 and 4 reported by Jensen (1982) have been combined to obtain figures in this table.